Attachment A

Rangeland Suitability Analysis

Medicine Wheel/Paintrock Ranger District, Bighorn National Forest
Little Horn Watershed Allotments

Fisher Mountain C&H
Little Horn C&H
Red Springs C&H
Sage Basin C&H
Wyoming Gulch C&H

Updated 4/16/2011

Introduction:

Rangeland Suitability[1]: The appropriateness of applying certain resource management practices to a particular area of land, as determined by an analysis of the economic and environmental consequences and the alternative uses foregone. A unit of land may be suitable for a variety of individual or combined management practices.

Although there is no regulatory requirement to do a Rangeland Suitability analysis at the project level (it is only an LRMP requirement) a project level Rangeland Suitability analysis can provide useful information to the deciding officer.

The number of acres and distribution of Suitable Rangeland on an allotment can be helpful in displaying spatial distribution of forage allocated to various uses. It can be compared to known or proposed livestock use patterns, and indicate management needs; it can be a useful tool in developing management strategies and identifying opportunities. It alone is rarely used to make management recommendations.

It can be used to describe stocking levels. A tabulation of total Rangeland acres Suitable for livestock grazing on an allotment can be useful in comparing the relative stocking levels in AUMs stocked per acre of Suitable Rangeland (AUM/acre). This "stocking rate" can provide the manager an indication of 1) the level of site production necessary to support this number of animals for this time frame, 2) the level of management required to make best use of available forage, 3) the likelihood that full numbers of stock will be supported for the scheduled season, 4) the likelihood that resource problems will occur, such as overgrazing, if full permitted AUMs are grazed. It alone is rarely used to make decisions about stocking or capacities, but it gives an indication.

Rangeland Suitability analysis is not used to decide where livestock may graze. It is not a decision to graze livestock on any specific area of land, nor is it a decision about or estimate of livestock grazing capacity. The Rangeland Suitability determination may or may not provide supporting information for a decision to graze livestock on a specific area. Intermingling of livestock between areas mapped as Suitable will occur on a land base of any significant size. Therefore, Rangeland Suitability determinations are not intended to imply that livestock will be precluded from being found on lands that may not be mapped as Suitable.

Many acres of forested and non-forested lands not mapped as "Suitable" still may provide forage for permitted livestock that may not be reflected in analysis. Transitory rangeland resulting from timber harvest or wildfire is normally not considered Suitable. Incidental use of livestock on lands not mapped as Suitable is normally permissible, but not necessarily planned for. Grazing or moving livestock through areas not mapped as Suitable is not prohibited under law, policy regulation or Forest Plan direction. In addition, the use of these areas is considered incidental and these areas are generally not preferred by livestock due to aspect, slope, lack of forage, etc. Areas not mapped as Suitable are included within allotments because of their intermingled nature and because it is more efficient and cost effective to locate allotment and pasture boundaries on ridgelines and other manageable geographic boundaries rather than attempting to arbitrarily require livestock to only be on specific acres that are determined to be Suitable. This would be extremely difficult if not impossible.

[1] 36 CFR 219.3 and FSM 1905

Actual stocking will be based on annual production, a history of meeting annual utilization guidelines, and meeting or moving toward the desired conditions. When guidelines for any year have been met, the livestock must be moved out of the key area, or they will be removed from the pasture or allotment. The permitted number and season of use is subject to change based on evidence of actual use and performance.

Analysis:

An assessment of Suitable Rangeland was completed as part of the Big 6 Allotment analysis. It began with a review of the 2005 Forest Plan landscape level Rangeland Suitability clipped for these five allotments. The Tables below provide the acreage calculated as a result of that modeling exercise, described in the Final EIS for the Bighorn National Forest Land and Resource Management Plan (Forest Plan), November 2005.

Upon close review and in comparison with existing range analysis data (also provided in tables below), as well as on-the-ground experience of BNF staff and the ID team, it is clear that the data used in revision of the Forest Plan is of limited value in site-specific application without extensive additional updating in most cases. Areas of considerable size that are known to be considered suitable for livestock grazing, as well as some areas known not to be suitable are not accurately displayed. Some large areas known to provide forage are omitted entirely, while in other areas rangeland is included that is not used by livestock. Polygons are inconsistent with actual on-the-ground areas of forage and vegetation types in site-specific areas.

Existing range analysis data, although sometimes relatively old, was determined in most cases to be more reflective of actual conditions, and was used in updating data sets. Additional analysis utilizing GIS and a combination of available data including forest vegetation, forest plan suitability analysis, soils, range analysis maps, and on the ground knowledge was completed to create a map and calculate acres of "2009 Updated Analysis" for livestock grazing. Updated range analysis maps were prepared and acres were determined, which may have resulted in some changes in numbers as compared to an older analysis where GIS technologies were not available. In other cases, updated acreage figures reflect changes that have occurred on the ground such as loss of transitory rangeland that was counted in an earlier analysis, or conifer encroachment that has taken over rangeland that was earlier considered suitable. Further ground-truthing may improve accuracy of some of the data sets. In all cases an ID team provided input to the analysis, and Rangeland Suitability Criteria established for the watershed was applied.

The following is a detailed description of the process used for the following five allotments included in the Little Horn project area. Some allotments required a more detailed analysis than others. This is reflected in the tables provided as well as in the corresponding narrative.

Fisher Mountain C&H:

In comparing the 1977 Range Analysis map with the Forest Plan modeling exercise, the amount of suitable acres has been reduced due to conifer encroachment since the 1977 Range Analysis. Aerial photo interpretation supports this (photo #299-98 dated 09/09/99), and as a result the 2009 Updated Analysis is considered sufficient for use in planning.

Allotment	*Permitted AUMs*	*2005 Forest Plan Model*		1977 *Range Analysis*			*2009 Updated Analysis*		
		Suitable Acres	*Acres/ AUM*	*Allotment Total Acres*	*Allotment Suitable Acres*	*Suitable Acres/AUM*	*Total Acres*	*Suitable Acres*	*Suitable Acres/AUM*
Fisher Mt.	60	149	2.5	1,485	390	6.5	1,775	159	2.6
Should conifer encroachment continue as historically shown, the suitable rangelands could be further reduced over the next 20-30 years.									

Little Horn C&H

The Forest Plan modeling exercise omitted many acres that were considered suitable in the 1984 Range Analysis. Professional knowledge from on the ground experience was used to validate this, and corrections were made to arrive at the 2009 Updated Analysis figures. Further ground-truthing may improve accuracy of the data set. The 2009 Updated Analysis is considered sufficient for use in planning at this point in time. It should be noted that the information below applies to the entire Little Horn C&H allotment with the three current permits. These permittees operate under separate rotations at present.

Allotment	*Permitted AUMs*	*2005 Forest Plan Model*		1984 *Range Analysis*			*2009 Updated Analysis*		
		Suitable Acres	*Acres/ AUM*	*Allotment Total Acres*	*Allotment Suitable Acres*	*Suitable Acres/AUM*	*Total Acres*	*Suitable Acres*	*Suitable Acres/AUM*
Little Horn C&H	4,262	2,609	0.6	12,437	5,866	1.3	13,380	3,894	0.9

Red Springs C&H

In comparing the 1980 Range Analysis with the Forest Plan modeling exercise, the Forest Plan model included acres that had been burned by wildfires and should not be included in the suitable base, as they would be considered transitory range. In addition, other acres that are considered suitable per the 1980 Range Analysis and professional knowledge were omitted in the forest plan modeling exercise. Further ground-truthing may improve accuracy of the data set. The 2009 Updated Analysis is considered sufficient for use in planning at this point in time.

Allotment	*Permitted AUMs*	*2005 Forest Plan Model*		1980 *Range Analysis*			*2009 Updated Analysis*		
		Suitable Acres	*Acres/ AUM*	*Allotment Total Acres*	*Allotment Suitable Acres*	*Suitable Acres/AUM*	*Total Acres*	*Suitable Acres*	*Suitable Acres/AUM*
Red Springs C&H	1,953	4,897	2.5	21,039	5,696	2.9	24,448	4,519	2.3

Sage Basin C&H

The Forest Plan modeling exercise omitted many acres that were considered suitable in the 1982 Range Analysis. Professional knowledge from on the ground experience was used to validate this, and corrections were made to arrive at the 2009 Updated Analysis figures. Further ground-truthing may improve accuracy of the data set. The 2009 Updated Analysis is considered sufficient for use in planning at this point in time.

Allotment	*Permitted AUMs*	*2005 Forest Plan Model*		1982 *Range Analysis*			*2009 Updated Analysis*		
		Suitable Acres	*Acres/ AUM*	*Allotment Total Acres*	*Allotment Suitable Acres*	*Suitable Acres/AUM*	*Total Acres*	*Suitable Acres*	*Suitable Acres/AUM*
Sage Basin C&H	764	1,058	1.4	5,144	1,734	2.3	7,391	1,364	1.8

Wyoming Gulch C&H

In comparing the 1982/83 Range Analysis maps with the Forest Plan modeling exercise, the Forest Plan model was quite accurate for this allotment with just a few minor changes made in the acre figure. The 1989 CE and Decision Memo documented a conversion from sheep to cattle with 4,948 acres considered suitable for cattle. The 1989 Allotment Management Plan also showed a total of 8,318 acres and 4,948 suitable acres which is consistent with the 2005 Plan Model and 2009 Updated Analysis. The 2009 Updated Analysis is considered sufficient for use in planning.

Allotment	*Permitted AUMs*	*2005 Forest Plan Model*		1982/83 *Range Analysis*			*2009 Updated Analysis*		
		Suitable Acres	*Acres/ AUM*	*Allotment Total Acres*	*Allotment Suitable Acres*	*Suitable Acres/AUM*	*Total Acres*	*Suitable Acres*	*Suitable Acres/AUM*
Wyoming Gulch C&H	850	4,368	5.1	8,285	*5,238	6.2	8,311	4,393	5.2
*INFRA acres for suitable show 5,238 which is inconsistent with the 1989 AMP figures, and may be a misentry. The 2009 Updated Analysis figures will be used for planning purposes.									